WHAT IS CLAIMED IS:

1. A relay apparatus for a terminal or a server on a private network that does not have an address on a global network to perform communication through the global network, comprising:

a WAN interface unit which provides communication with the global network;

a LAN interface unit which provides communication with the private network;

an access control unit having means for controlling access from the global network to the private network in accordance with an access control rule which is established on a per sending device basis or on a per sending network basis;

an address translation unit having:

means for translating an address in accordance with an address translation rule established on a per sending device basis, in order to transferring information from a terminal on the global network to a terminal on the private network; and

means for translating an address in accordance with an address translation rule established on a per sending device basis, in order to transferring information from a terminal on the private network to a terminal on the global network; and

a database unit which records the access control rule and the address translation rule.

2. The relay apparatus according to Claim 1, comprising:

an authentication unit which performs authentication in response to a request for access permission sent from a terminal on the global network, wherein:

the database unit further records user information used by the authentication unit to perform authentication;

the access control unit further has:

means for adding an access control rule established on a per sending device basis or a per sending network basis to the database unit if the authentication succeeds; and

means for deleting the added access control rule from the database unit when a predetermined criterion for ending communication is satisfied; and

the address translation unit further has:

means for adding an address translation rule established on a per sending device basis to the database unit if the authentication succeeds; and

means for deleting the added address translation rule from the database unit when a predetermined criterion for ending communication is satisfied.

3. The relay apparatus according to Claim 1, wherein:

the access control unit further has:

means for adding an access control rule established on a per sending device basis or on a per sending network basis to the database unit in response to a request from an authentication sever which performs authentication of a terminal on the global network; and

means for deleting the added access control rule from the database unit when a predetermined criterion for ending communication is satisfied; and

the address translation unit further has:

means for adding an address translation rule established on a per sending device basis to the database unit in response to a request from the

authentication server; and

means for deleting the added address translation rule from the database unit when a predetermined criterion for ending communication is satisfied.

4. An authentication server which permits access to the relay apparatus according to Claim 3, comprising:

an interface unit which provides communication with a terminal on the global network and the relay apparatus;

an authentication unit which performs authentication in response to a request for permission to access the relay apparatus from a terminal on the global network;

a control unit having:

means for requesting the relay apparatus to add an access control rule and an address translation rule for a packet from a terminal on the global network if authentication at the authentication unit succeeds; and

means for requesting the relay apparatus to delete the added access control rule and address translation rule when a predetermined criterion for ending communication is satisfied; and

a database unit which records information associating user information used by the authentication unit to perform authentication with an access control rule and address translation rule requested to be added.

5. The relay apparatus according to any of Claims 1 to 3, wherein:

the access control unit further has:

means for adding an access control rule established on a per sending device basis to the database unit in response to a request for initiating communication from a terminal on a private network; and

means for deleting the added access control rule from the database

unit when a predetermined criterion for ending communication is satisfied; and

the address translation unit further has:

means for adding an address translation rule established on a per sending device basis to the database unit in response to a request for initiating communication from a terminal on the private network; and

means for deleting the added address translation rule from the database unit when a predetermined criterion for ending communication is satisfied.

6. An address translation apparatus for a terminal or a server on a private network that does not have an address on a global network to perform communication through the global network, comprising:

a WAN interface unit which provides communication with the global network;

a LAN interface unit which provides communication with the private network;

an address translation unit having:

means for translating an address in accordance with an address translation rule established on a per sending device basis, in order to transferring information from a terminal on the global network to a terminal on the private network; and

means for translating an address in accordance with an address translation rule established on a per sending device basis, in order to transferring information from a terminal on the private network to a terminal on the global network; and

a database unit for recording the address translation rules.

7. The address translation apparatus according to Claim 6,

wherein

the address translation unit further has:

means for adding an address translation rule established on a per sending device basis to the database unit in response to a request for initiating communication sent from a terminal on the global network or a terminal on a private network; and

means for deleting the added address translation rule from the database unit when a predetermined criterion for ending communication is satisfied.

8. The address translation apparatus according to Claim 7, comprising:

an authentication unit which performs authentication in response to a request for initiating communication from a terminal on the global network, wherein:

the database unites further records user information used by the authentication unit to perform authentication; and

the address translation unit adds the address translation rule to the database unit in response to a request for initiating communication from a terminal on the global network only if the authentication succeeds.

9. The address translation apparatus according to Claim 7, wherein the address translation unit adds the address translation rule to the database unit in response to a request for initiating communication from a terminal on the global network only if an authentication server which performs authentication requests the addition.

10. An authentication server which permits access to the address translation apparatus according to Claim 9, comprising:

an interface unit which provides communication with a terminal on

the global network and the relay apparatus;

an authentication unit which performs authentication in response to a request for permission to access the relay apparatus from a terminal on the global network;

a control unit having:

means for requesting the address translation apparatus to add an address translation rule for a packet sent from a terminal on the global network if authentication at the authentication unit succeeds; and

means for requesting the address translation apparatus to delete the added address translation rule when a predetermined criterion for ending communication is satisfied; and

a database unit which records user information used by the authentication unit to perform authentication.

11. A firewall apparatus which allows a packet from a global network external to the firewall to pass through to a private network internal to the firewall apparatus if the packet meets an acceptance condition set in a database unit, comprising:

a WAN interface unit which provides communication with the global network;

a LAN interface unit which provides communication with the private network;

an access control unit having means for controlling access from the global network to the private network in accordance with an access control rule established on a per sending device basis or on a per sending network basis;

an authentication unit which performs authentication in response to a request for access permission from the global network; and

a database unit which records the access control rule and user information used by the authentication unit to perform authentication.

12. The firewall apparatus according to Claim 11, wherein:

the access control unit further has means for adding an access control rule established on a per sending device basis or on a per sending network basis to the database unit if authentication at the authentication unit succeeds and an access control rule for a request for access permission from a device on the global network is not recorded in the database unit; and

means for deleting the added access control rule from the database unit when a predetermined criterion for ending communication is satisfied.

13. The firewall apparatus according to Claim 12, wherein the access control unit further has:

means for, if a request for new access permission is provided from a device on the global network that is using an established secure session during the duration of the secure session, sending notification seeking confirmation of the request to the device on the global network by using the secure session; and

means for rejecting a new access regardless of the access control rule if denial of the request is returned from the device on the global network.

14. The firewall apparatus according to any of Claims 11 to 13, wherein the access control unit further has:

means for monitoring the status of communication; and

means for notifying the device on the global network of an anomaly in communication if a predetermined criterion for communication anomaly is satisfied.

15. An address translation method for a terminal on a private network that does not have an address on a global network to perform

communication through the global network, comprising:

recording an address translation rule established on a par sending device basis in a database unit beforehand;

when a packet from the global network is received by a WAN interface unit,

translating, by an address translation unit, a destination address in accordance with the address translation rule; and

transferring, by a LAN interface unit, the packet having the translated address to the private network;

when a packet from the private network is received by a LAN interface unit,

translating, by the address translation unit, a source address in accordance with the address translation rule; and

transferring, by the WAN interface unit, the packet having the translated address to the global network.

16. An address translation method for a terminal on a private network that does not have an address on a global network to perform communication through the global network, comprising:

recording an address translation rule established on a per sending device basis in a database unit beforehand;

when a packet from the global network is received by a WAN interface unit,

performing authentication in an authentication unit and;

if the authentication succeeds, checking, by the address translation unit, the database unit to see whether or not an address translation rule that matches source information and destination information of the packet is stored in the database unit, and

if a matching address translation rule is found in the database unit, translating the address of the packet in accordance with the address translation rule;

if a matching address translation rule is not found in the database unit, adding an address translation rule to the database unit and translating the address of the packet in accordance with the added address translation rule; and

transferring, by a LAN interface unit, the packet having the translated address to the private network;

when a packet from the private network is received by the LAN interface unit;

checking, by the address translation unit, the database unit to see whether or not an address translation rule that matches source information and destination information of the packet is recorded in the database unit, and

if a matching address translation rule is found in the database unit, translating the address of the packet in accordance with the address translation rule;

if a matching address translation rule is not found in the database unit, adding an address translation rule to the database unit and translating the address of the packet in accordance with the added address translation rule; and

transferring by the WAN interface unit the packet having the translated address to the global network; and

if there is an address translation rule added by the address translation unit, deleting the address translation rule from the database unit when a predetermined criterion for ending communication is satisfied.

17. The address translation method according to Claim 16,

wherein, instead of performing authentication in the authentication unit, determination is made that authentication is successful when a request is received from an authentication server which performs authentication of a terminal on the global network.

18. An access control method for allowing a packet from a global network external to a firewall to pass through to a private network internal to the firewall if the packet meets an access control rule set in a database unit, comprising:

recording an access control rule established on per a sending device basis or on a per sending network basis in a database unit beforehand; and

when a connection request from the global network is received by a WAN interface unit, checking, by an access control unit, the database unit to see whether or not an access control rule that matches the connection request is recorded in the database unit; and

if the access control rule is found in the database unit, permitting communication.

19. An access control method for allowing a packet from a global network external to a firewall to pass through to a private network internal to the firewall if the packet meets an access control rule set in a database unit, comprising:

recording an access control rule established on a per sending device basis or on a per sending network basis in a database unit beforehand; and

when a connection request from the global network is received by a WAN interface unit, performing authentication in an authentication unit; and

if the authentication succeeds, checking, by an access control unit, the database unit to see whether or not an access control rule that matches the connection request is recorded in the database unit; and

if a matching access control rule is found in the database unit, permitting the communication;

if a matching access control rule is not found in the database unit, adding an access control rule established on a sending device basis or on a sending network basis to the database unit and permitting the communication;

when a packet from the private network is received by a LAN interface unit,

checking, by the access control unit, the database unit to see whether or not an access control rule that matches the connection request is recorded in the database unit; and

if a matching access control rule is found in the database unit, permitting communication;

if a matching access control rule is not found in the database unit, adding an access control rule established on a sending device basis to the database unit and permitting the communication; and

if there is an access control rule added by the access control unit, deleting the access control rule from the database unit when a predetermined criterion for ending communication is satisfied.

20. The access control method according to Claim 19, instead of performing authentication in the authentication unit, determination is made that authentication is successful when a request is received from an authentication server which performs authentication of a terminal on the global network.

21. The access control method according to any of Claims 18 to 20, wherein:

the communication status of a established secure session is monitored during the secure session; and

if a predetermined criterion is met, the device on the global network that is using the established secure session is notified of occurrence of anomaly.

22. The access control method according to any of Claims 18 to 20, wherein:

if a new connection request from a terminal on the global network that has established a secure session is received by the WAN interface unit during the duration of the secure session, the information on the connection request is notified to the terminal on the global network that has the established secure session; and

if a denial of the request is returned from the device, rejecting the connection regardless of the access control rule recorded in the database unit.